

Recurrent epistaxis: a diagnostic dilemma*

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Abstract

Hirudiniasis is the term coined to indicate leech invasion into a body orifice or cavity. Here we present a case of epistaxis due to hirudiniasis. Removal of the leech is difficult as it is slippery and firmly attached to nasal mucosa by its sucker. Various innovative techniques have been used to remove the leech as it has to be removed in total, because if a part of sucker is left behind it leads to persistent bleed and infection. This infestation is common in the tropics, Mediterranean countries, Africa and Asia. Clinicians in non leech areas might not be familiar with this condition. Advice should be given regarding lifestyle modification, particularly changes to how water is drunk, to prevent further infestation. This article is just a small attempt to familiarize doctors in the Indian subcontinent with this unique condition in cases of recurrent nasal bleed.

Key words: epistaxis, hirudiniasis, leech, nose, nasal cavity

Introduction

Leech infestation has not been mentioned as a cause of epistaxis in standard text books. This infestation is common in the tropics, Mediterranean countries, and in Africa and Asia⁽¹⁾. Clinicians in non leech areas might be not familiar with this condition. A leech is a blood sucking hermaphrodite parasite which varies in size and colour. The size reported varies from 2-12cm⁽²⁾. Leech bites are painless and the infestation remains symptomless until the damage occurs. The most common presentation of aquatic leech endoparasitism is nasal infestation with recurrent unprovoked epistaxis. They may localize in oral mucosa of the oropharynx (7%)⁽³⁾, tonsils and if localized in the larynx the patient may present with haemoptysis, hoarseness or dyspnoea⁽⁴⁾. Direct removal of the leech from the nasal cavity can be troublesome because of its powerful attachments to the nasal mucosa and the presence of slippery slime over its body⁽⁵⁾. During removal if the leech is damaged this leads to regurgitation of its bacteria filled stomach content into the wound leading to secondary infection⁽⁶⁾. Therefore removal requires special care and the utmost gentleness to prevent any damage to the leech. In our experience it is difficult to hold it with forceps and firm traction cannot be used to detach the

leech because it can leave some of the mouth parts behind, leading to persistence of bleeding and secondary infection .

Case report

A 65-year-old male presented in ENT OPD with complaints of recurrent nasal bleeding for almost a month, history of pain in and around the nose with occasional irritation on the left side of the nasal cavity. The patient was non-hypertensive and was not taking any anticoagulants. There was no history of bleeding disorder or nasal allergy. On examination anterior rhinoscopy showed marked right side deflected nasal septum touching the lateral wall of nose. No further examination was possible. On left side inspection, only clotted blood was seen. With diagnostic nasal endoscopy on the right side the scope could not be negotiated. On the left side no pathology was seen in the middle meatal area. A presumptive diagnosis of right side sinusitis/malignancy was made. The patient was sent for contrast enhanced CT and while a standard CT was carried out, the patient had a severe nasal bleed. Diagnostic nasal endoscopy this time showed a brownish foreign body and when the light from the endoscope fell on it this foreign body curled and twisted to move away from light towards the right side; this is when the diagnosis of live foreign

body/worm was made. Attempts were made to remove the worm from the nasal cavity with the help of tilley's forceps but as it was firmly attached to the nasal wall by its anterior end and being slippery in nature, the attempt was unsuccessful. 10% xylocaine was sprayed in nasal cavity to anaesthetize the area and the worm. This helped us to remove the worm in its entirety. It was a mobile brownish worm 1 cm wide and 6 cm long including its sucker. Diagnostic nasal endoscopy was performed once more to confirm complete removal of the worm.

Discussion

The leech is an endoparasite in humans. Leech endoparasitism is extremely rare in urban areas but is frequent in endemic rural areas⁽⁷⁾. Leeches are segmental aquatic worms living in fresh water in tropical areas. They belong to the phylum annelida genus and comprise the subclass hirudinae⁽⁸⁾. Leech infestation in the nose, paranasal sinuses and nasopharynx can be an unusual cause of epistaxis and nasal obstruction. It is known that presence of animate and inanimate foreign bodies often present with unilateral nasal bleed but cases of nasal leech causing uni or bilateral persistent epistaxis are rare and exclusive to the aforementioned geographic areas⁽⁹⁾.

The usual time period between leech infestation and onset of symptoms varies from 2-15 days⁽¹⁰⁾. Leeches use their anterior suckers to connect to hosts for feeding. They also release an anaesthetic which blunts mucosal sensation in their hosts⁽⁹⁾. Their saliva contains the anti coagulant enzyme hirudin and a histamine-like vasodilator. Once attached, the leech uses a combination of mucus and suction to stay attached and secrete anticoagulant into the host blood stream, enabling them to feed voraciously. As this secreted hirudin inhibits thrombin and factor IX A, the bite of this worm causes increased bleeding, sometimes even after removal of the leech, as the saliva contains a potent vasodilator which keeps the blood supply to the area increased. The prolonged bleeding after a leech bite is due to the action of factors in the leech saliva left in the bite, which include histamine-like vasodilators, hirudin (a potent antithrombin), hyaluronidase, and calin (a platelet aggregation inhibitor) and this may be the main cause of epistaxis. For this reason, nose bleed is the most common symptom in most patients. Interaction between exposed collagen and platelet and/or von Willebrand factor is believed to be one of the initiating events for thrombus formation at the site of damaged endothelium. Interference with this mechanism may provide an antithrombotic potential. Calin specifically inhibits human platelet aggregation induced by collagen. In addition, it has been shown that calin inhibits platelet adhesion. Because of these factors bleeding from a leech bite wound has been reported to persist for a mean of 10 hours and as long as seven days⁽¹¹⁾. Leeches are known to ingest blood equivalent to 89% of body weight, hence affected individuals may suffer from severe anemia, even to the extent of needing

blood transfusion⁽¹²⁾. Once the leech is attached to a host, it will ingest around 5-15 ml of blood – up to 10 times its body weight, in approximately 10- 60 minutes, before detaching itself⁽¹³⁾

In hilly areas where poor villagers have the habit of drinking water directly from the falls or springs by means of palms of both hands cupped together, a leech can enter one's nostril very easily and stays in the nasal cavity by virtue of its sticking and blood sucking property⁽⁹⁾. In the present case this was the most likely cause of infestation as the patient was a resident of the hilly area of Solan in Himachal Pradesh. The nose is the most common site of infestation (71%) with epistaxis as the most prominent symptom⁽³⁾. Patients with lower socioeconomic status or those living in rural areas with a history of drinking water from natural sources, bathing in ponds, springs, lakes and natural wells are usually affected. Hence it is recommended that a clinician should always suspect leech infestation for recurrent nasal bleeding in the tropics and it is important to thoroughly examine both nasal cavities and the nasopharynx -7%⁽³⁾ so that it is not over looked .

Removal of the leech requires special care and utmost gentleness because it attaches strongly with its sucker and also because of its soft and slippery body surface, which can cause it to rupture easily. This makes it difficult to hold with forceps and firm traction cannot be applied to detach the leech as it can leave some of the mouth parts behind, leading to persistence of bleed and secondary infection (montezari). *Aeromonas hydrophila* is a predominant bacterial flora in the gut of the leech, where it plays an essential role in the digestion of blood. In the past when leeching therapy was used, wound infection was common as a result of the leeches introducing bacteria at the surgical site causing infection with *Aeromonas*, and this has been well described⁽¹⁴⁾.

The leech can be paralysed with cocaine to extract it directly. As an alternative to cocaine, as in our case, a topical anaesthetic agent such as lidocaine can also be used, which is equally effective to paralyze the leech and cause suffocation. As a consequence the leech will move to the surface and its attachment to the mucosa is weakened. The leech can then be removed easily⁽¹⁵⁾. Respiration by the leech takes place through its body wall, meaning it can be paralysed with anaesthetic agents such as lidocaine. The suffocation caused by anaesthetic agents causes the worm to migrate towards the surface and makes the attachment of the leech to the mucosa weak. It can then be removed easily. In this case we used 10% lidocaine spray to paralyse the worm before its removal, detaching it from the mucosa.

Another possible procedure for removal of the leech is to keep a kidney tray filled with water just below the patient's nasal vestibule. As soon as the leech approaches water, it can be extracted with artery forceps. This is more time consuming but potentially more beneficial for the patient⁽⁷⁾. Other substances

can be used to tranquilize the leech before removal. Irrigation with strong saline, vinegar, turpentine oil or alcohol may be used to enable removal of the leech. However, this method of using intense irritants/caustic agents should be avoided because these methods may cause the leech to increase its bite and regurgitate the contents of its stomach, which contain harmful bacteria, giving rise to bacteremia⁽¹⁴⁾.

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Authorship contribution

Dr Shenny Bhatia conceived the idea of the article and performed the detailed assessment and management of the case discussed, along with the planning and writing of the manuscript. Mrs Deepika Sharma assisted in planning, drafting and editing the manuscript. Dr Vipin Gupta supervised the assessment and management of the case discussed, and carried out a critical revision of the article.

Conflict of interest

No potential conflict of interest relevant to this article was reported.

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